innovadyne Technologies, Inc.

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leading the way in high-precision dispensing

HTS Application Overview

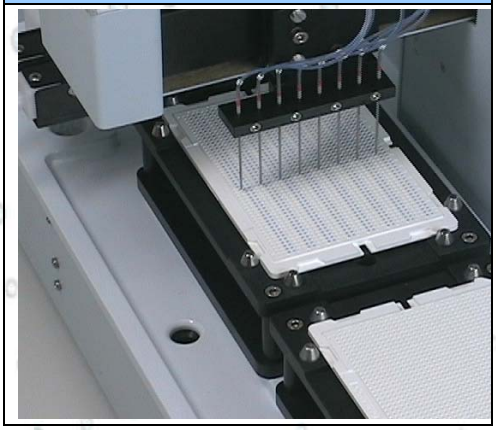
Innovadyne enables the HTS market by producing high precision, non-contact dispensing instruments capable of reducing total-assay test volumes by at least an order of magnitude. The Platemaker and Screenmaker's direct 96-tip dispensing of 100 – 250 nL samples eliminates the need for intermediary dilutions, saving time and reducing consumables. The Nanodrop™ series' highly precise, fast, non-contact reagent dispense not only reduces traditional assay costs tenfold, but also improves signal-to-noise and data quality.

Non-contact dispensing can also aid in mixing and in the elimination of trapped air in the wells, improving detection. With problematic reagents, tip clogging and carryover can be reduced through the aspiration and dispense of a cleaning agent prior to a wash. Innovadyne's aspirate and dispense architecture, with a valve-free fluid path, creates a flexible device that is capable of mixing and dispensing a wide variety of reagents with much less maintenance than flow-through systems and much higher throughput than traditional liquid handlers.

In the application note "Using the Nanodrop to Reduce the Cost of Reagents in a Typical Luminescence Assay", developed in collaboration with Chiron Corporation (Emeryville, CA), we designed a simple side-by-side experiment to show that Innovadyne's Nanodrop™ liquid handler was able to not only reduce total-assay volumes five-fold, but also improve results in comparison to data obtained through classical liquid handling, as summarized below:

Platemaker HTS

Nanodrop II Dispensing to 1536-Well Plate



	Traditional Liquid Handler, 50 µL Assay	Nanodrop, 10 µL Assay
Dispense Precision	10%	8%
Assay Z-Factor	.69	.77
Signal-to-noise ratio	100	183

Application Notes

- **Using the Nanodrop to Reduce the Cost of Reagents in a Typical Luminescence Assay (M026)**
- **Long-Term Performance Evaluation of the Nanodrop using BSA (M025)**

Technology Briefings

- **High Precision, Non-Contact Dispensing (M002)**
- **Low-Volume Dispensing with the Nanodrop (M021)**

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Features (all platforms)

- High precision liquid handling
- Fast delivery minimizes well to well assay variability
- Low-dead volumes
- Valve-free fluid path
- Flexible configurations
- Large dynamic volume range: 100 nL-40 µL
- 96, 384, 1536, 3456 plates
- 96/384/1536 low profile, Xtal, and deep well (all platforms except Nanodrop I)
- User-friendly software
- Ability to clean nozzles between runs
- Simple to integrate with drivers available from most integrators
- Easy to maintain

Platforms

Item	Description	Plate Posi-tions	8-Tip Head	16-Tip Head	96-Tip Head	Syringe Channels	1,4, or 8-Tip Additions to all Wells
10808	Nanodrop I stage and fluidics	1	Yes	-	-	8	-
10591	Nanodrop ExtY stage and fluidics	1	Yes	-	-	8	Yes
11638	Nanodrop II stage and fluidics	2	Yes	-	-	8	Yes
11164	Screenmaker 96+8	5	Yes	-	Yes	16	Yes
12027	Platemaker HTS	5	Yes	-	Yes	104	Yes

Software

Item	Description
11727	Nanobuilder
10591	Nanodrop GUI (for Nanodrop only)

Accessories

Item	Description
11193	Reagent refill system (Nanodrop)
11675	Paddle-wheel stirrer (Nanodrop)
11731	Orbital shaker (all platforms)
	Wide-bore tip set (200 µm) (all platforms)

Specifications (all platforms)

Return-To-Spot Accuracy	0.1 mm
Aspiration Range, 8-Tip Head	0.1-500µL
Dispensing Range (8-Tip Non-Contact)	0.1-40µL
Dispensing Range (96-Tip)	Screenmaker: 0.1-125µL Platemaker: 0.1-80µL
Dispensing Precision, 8-Tip Head	CV<10% at 100nL, CV<7% at 200nL, CV<5% at 1µL
Dispensing Precision, 96-Tip Head	CV<15% at 100nL, CV<10% at 200nL, CV<5% at 1µL
Dispensing Accuracy, 8-Tip Head	±10% at 100nL, ±7% at 200nL, ±5% at >1 µL
Dispensing Accuracy, 96-Tip Head	Screenmaker: ±10% at 100-500nL, ±5% at >1 500nL Platemaker: ±10% at 100nL, ±7% at 200nL, ±5% at >1 µL
Dead Volume, 8-Tip head	1.5µL/channel at 1µL across 384-well plate
Dead Volume, 96-Tip head	<1µL/channel
Syringe Capacity	500, 1000µL